

Cooperative Agricultural Pest Survey (CAPS)

DETECTING PLANT PESTS in AGRICULTURE and the ENVIRONMENT

2020 Survey Targets:



CAES
The Connecticut Agricultural Experiment Station
Putting Science to Work for Society since 1875

Nursery Pests:

Oak ambrosia beetle– *Platypus quercivorus*

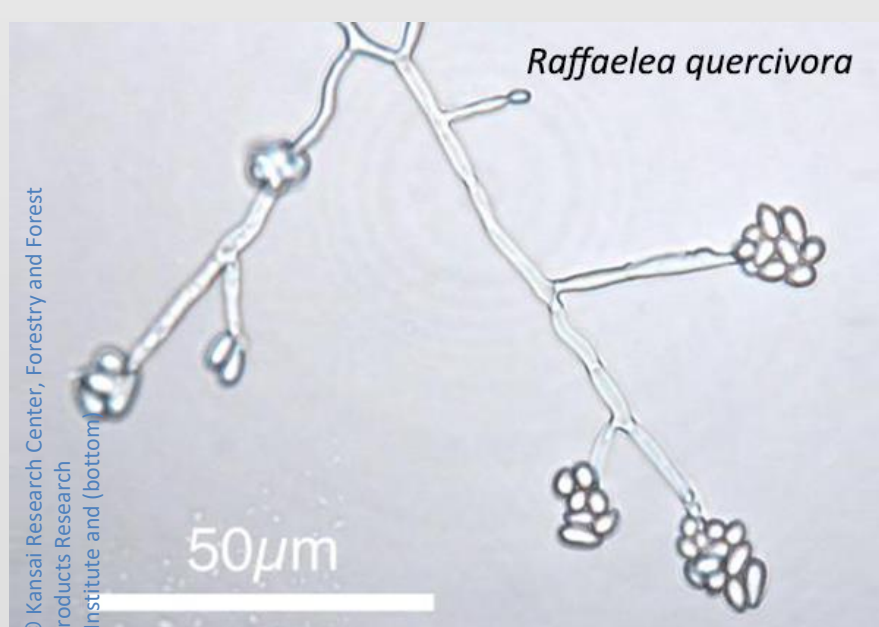
Larval feeding in the cambial area causes discoloration and wilting of the canopy. Sapwood is stained with the ambrosia fungus near the horizontal galleries. Host wood includes many species of oak (*Quercus*), tan oak (*Lithocarpus*) and chinkapin (*Castanopsis*).



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Japanese oak wilt – *Raffaelea quercivora*

This fungal pathogen is vectored by the oak ambrosia beetle. Discovered in 2002 on dying oak trees in Japan, this fungus can attack and harm healthy trees. Hosts include a wide variety of oak species, although which US-native oaks are susceptible to this disease is not currently known.



Pear leaf blister moth – *Leucoptera malifoliella*

PLBM larvae mine the foliage of pome fruit bearing trees such as apple (*Malus*), pear (*Pyrus*), cherry (*Prunus*) and quince (*Cydonia oblonga*). It has also been reported to feed on forest trees such as alder (*Alnus*), birch (*Betula*), and hawthorn (*Crataegus*).

Larval feeding damage causes premature leaf drop, leading to tree stress and reduced size and number of fruit. Defoliation will weaken trees, making them more vulnerable to secondary attack.



Oak processionary moth – *Thaumetopoea processionea*

Major defoliator of oaks. Late instar caterpillars have stinging hairs that cause irritation to the skin and can cause respiratory distress if inhaled.

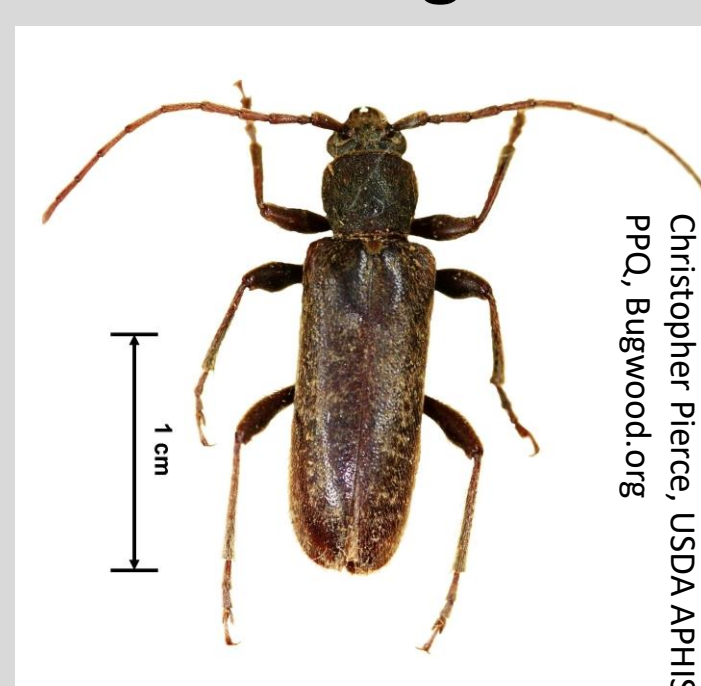
Spotted lanternfly – *Lycorma delicatula*

These phloem-feeding planthoppers cause direct tree damage and produce honeydew, making them a landscape nuisance pest. They will also feed on a wide variety of fruit-bearing crops, including grapes. SLF was first detected in PA in 2014, has since spread to NJ, MD, VA, and DE. Interceptions have occurred in NY, MA, and CT.



Velvet longhorned beetle – *Tricoferus campestris*

This longhorned beetle (VLB) attacks a wide range of woody plant hosts, including apple, mulberry, birch, willow, and at least 40 other genera. Larval VLB's bore underneath the bark, creating large galleries and causing destruction of bark and the yellowing of leaves.



Christopher Pierce, USDA APHIS PPO, Bugwood.org

Citrus longhorned beetle – *Anoplophora chinensis*

A close relative of the Asian longhorned beetle. It shares many of the same hosts as ALB, including maple, apple, poplar, willow, as well as citrus. The damage CLB causes is also very similar to ALB, where larval galleries damage bark and conducting tissue, but CLB additionally will also damage the lower trunk and roots of its host.



Pest and Diseases Image Library, Bugwood.org



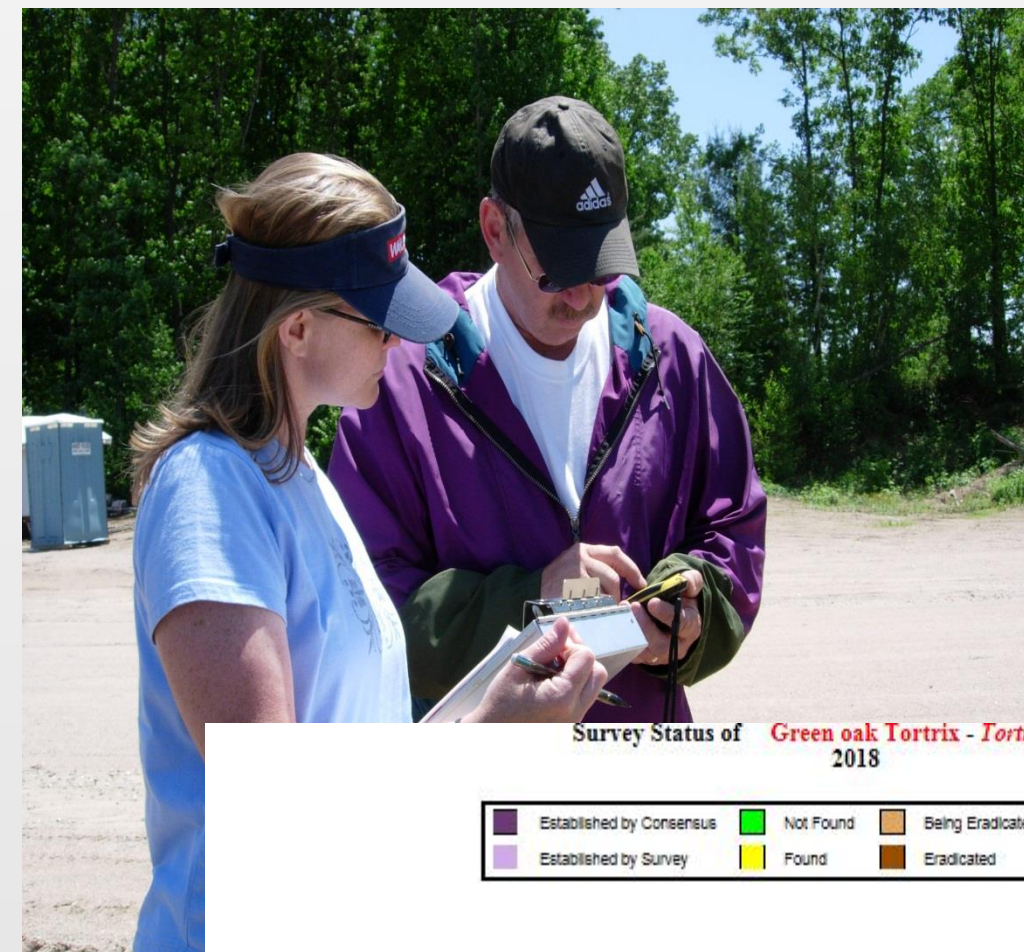
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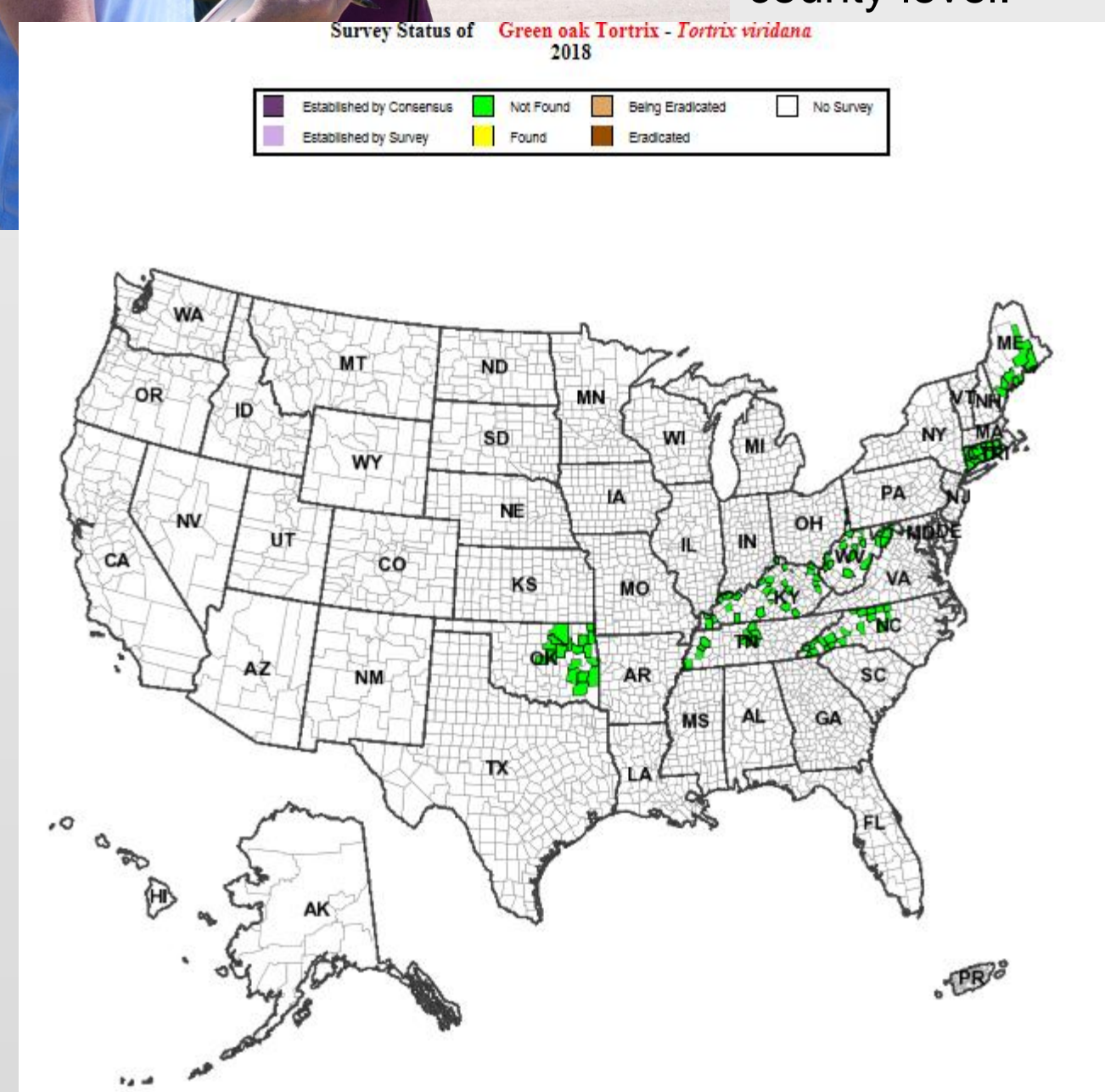
With worldwide trade and travel increasing, we are at an increased risk of foreign plant species, plant diseases, and insect pests being introduced in the U.S. CAPS surveys target high-risk pests of agricultural crops or forest and landscape plants. Early detection of these pests helps prevent pest establishment and lowers eradication costs. CAPS surveys can also determine if an agricultural crop is free of a certain pest, thereby allowing export of that crop to other states and countries.



Cross-vane panel trap for trapping longhorned beetles.



National CAPS survey results are viewable on Purdue's PestTracker website at the county level.



Lindgren funnel trap for trapping wood-boring bark and ambrosia beetles.



Wing traps can be used to survey for a wide variety of pests, including oak processionary and green oak tortrix moths.



Bucket trap set with a pheromone to trap winter moth.

In Connecticut, the CAPS program has conducted surveys in a wide variety of settings, including nurseries, Christmas tree farms, state parks, farms, conservation commission lands, and public lands. Pests surveyed for under CAPS include insect pests such as defoliating tortricid moths and wood-boring ambrosia beetles, and plant diseases such as ramorum blight.

The Connecticut CAPS program also provides outreach and education to both industry professionals and the public regarding exotic pest detection and prevention.



Ramorum Blight (Sudden Oak Death)

What is Ramorum Blight?

- Sudden Oak Death was used to describe the rapid death of tanoaks and native oaks in coastal California in the mid 1990s.
- The disease is now called Ramorum Blight because of the expanded host range, which includes some native trees and many nursery plants commonly grown in Connecticut.



Tanoaks killed by *Phytophthora ramorum*, Big Sur, California

What is the Cause?

- *Phytophthora ramorum*, a fungus-like organism, was identified as the causal agent in 2001.



Leaf blotch on mountain laurel

What are the Symptoms?

Two distinct sets of symptoms are associated with *P. ramorum* infections.

Foliar and Stem Symptoms

- Exhibited by non-oak hosts (except tanoak, *Lithocarpus densiflorus*), including rhododendron, viburnum, and lilac
- Spots and blotches on leaves
- Shoot dieback



Tip dieback on viburnum

Bark Symptoms

- Exhibited by tanoak and red oak group hosts
- Lesions or cankers that may bleed or ooze on stems and trunks
- Can kill trees



Shoot dieback on rhododendron



Oozing cankers on bark of tanoak

Host Species of Concern in Connecticut

- *Aesculus hippocastanum*, Horsechestnut
- *Camellia* spp, all species, hybrids, and cultivars
- *Calluna vulgaris*, Scotch heather
- *Castanea sativa*, European chestnut
- *Fagus sylvatica*, European beech
- *Hamamelis virginiana*, Witch hazel
- *Kalmia latifolia*, Mountain laurel
- *Leucothoe fontanesiana*, Drooping leucothoe
- *Pieris*, some species
- *Pyracantha koidzumii*, Formosa firethorn
- *Quercus rubra*, Northern Red oak
- *Rhododendron* spp, including azalea, all species and cultivars
- *Salix caprea*, Goat willow
- *Syringa vulgaris*, Lilac
- *Taxus baccata*, English yew
- *Viburnum*, some species

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With worldwide trade and travel increasing, we are at an Increased risk of foreign plant pest species being introduced here in the U.S.



Taking location data for a trap site.



Hanging an emerald ash borer trap

CAPS surveys target high risk pests of Connecticut's agricultural crops or forest and landscape plants.

Early detection of these pests will prevent establishment and lower eradication costs.



White sticky trap in an apple tree.

CAPS surveys can also determine if an agricultural crop is free of a certain pest, thereby allowing export of that crop to other countries.

USDA-APHIS-PPQ in cooperation with
The Connecticut Agricultural Experiment Station



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2011 Pest List:

Oak Splendor Beetle - *Agilus biguttatus*



Hosts:
Beech
Chestnut
Oak



Beech Bleeding Canker

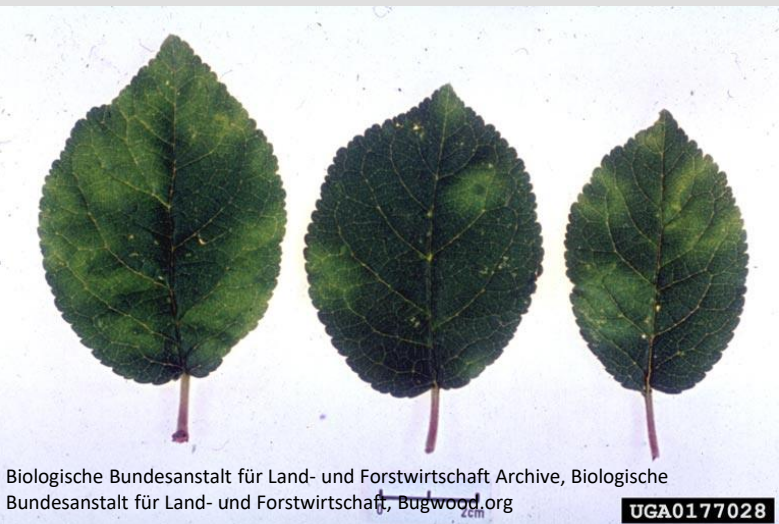
Phytophthora kernoviae

Hosts:
European Beech
Red Oak

European Oak Borer - *Agilus sulcicollis*



Hosts:
Beech
Chestnut
Oak



Plum Pox Virus

Hosts: *Prunus*, including; Apricot, Peach, Plum
Also: Chenopodium, Clover, Nicotiana, Physalis, Petunia, Sweet Clover

Brown Marmorated Stink Bug –



Halyomorpha halys

Hosts:
Vegetables: Bean, Cucumber, Soybean, Pepper Tomato
Fruit trees: apple, Plum, Pear, Citrus, Fig, Pecan
Fruit: Grape, Raspberry, Persimmon
Ornamentals: Birch, Buddleia, Catalpa, Dogwood, Hackberry, Honeysuckle, Lilac, Linden, Norway Maple, Redbud, Rose, Sunflower, Viburnum

Bleeding Canker of Horsechestnut

Pseudomonas syringae aesculi

Hosts:
Buckeye
Horsechestnut

Asian Gypsy Moth - *Lymantria dispar*



Hosts:
Prefers larch and broadleaf trees
Broad host range

Brown Spruce Longhorned Beetle

Tetropium fuscum



Hosts:
Fir
Pine
Larch
Spruce

Asiatic Brown Rot - *Monila polystroma*

Hosts:
Almond
Peach
Quince
Apple
Pear

Tremex Woodwasp

Tremex fusicornis



Hosts:
Broadleaf trees
Poplar
Oak
Willow

Winter Moth - *Operophtera brumata*



Hosts: Wide host range including many crops
Apple
Pear
Other Softwoods
Blueberry
Pine
Soft Hardwoods

Bee Mite

Tropilaelaps clareae



Hosts:
Honeybees

Mile-a-Minute Vine - *Persicaria perfoliata*



Mile-a-minute vine is an annual plant that reproduces by seed; its roots do not survive winter. Because the berries are the key to its proliferation, be particularly meticulous about disposing the clumps of berries that form in the cup-shaped leaves located on the plants' nodes. Distinctive triangular leaves, small barbs along its stems and clumps of green berries that ripen to blue after mid-July in Connecticut.

